SLR2000 Status: August 2005

• We are very close on the closed-loop tracking of LEO satellites. We've haven't had time to address this in the last few months due to the MLA-Earthlink experiment, GSFC internal proposals submissions, and LRO optical tracking analysis. We've been able to close the tracking loop using the quadrant detector on several LEO satellite passes, but the tracking loop couldn't maintain lock on other passes – this needs to be resolved and fixed.

• Point Ahead of the transmit beam using the Risley Prisms is operational and has been verified in both direction and magnitude with visual tracks.

• SigmaSpace delivered the new beam expander along with a conversion table to be used in setting the divergence for the system. This expander is in the system, but has not yet been implemented in the software. The new beam expander will allow us to correctly set the divergence and should allow us to get more signal back with better closed-loop tracking control.

• SigmaSpace has a design to blank the detector and is currently pursuing development. The detector performance appears to be degrading due to energy backscattered from the laser fire. We need to get this blanking into the system before a new detector is purchased.

• Automation software to control all the transceiver optics (except beam expander) is almost complete and is being installed into the operational software. Should be done in next month.

• Move of SLR2000 software to new SBS computers is in progress. These new VME computers will replace the obsolete VMIC VME computers that are now in the system.

• Although we should theoretically be able to track LAGEOS (night and day), we have not yet successfully tracked anything higher than LEO satellites. Expect to get past this with new beam expander.

• Near term goals:
- get new beam expander into software.
- demonstrate reliable closed-loop tracking.
- demonstrate LAGEOS ranging.
- purchase higher QE detector and get into system.

• Long term goals:
- track LAGEOS during day and GLONASS at night.
- get ranging data quality to operational level.
- complete decision making software to make the station semi-automated.